The First and Last Mile:

Rural communities' management of evolving disaster risk and the implications for preparedness in Disaster Risk Reduction (DRR)

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CERTIFICATE OF ORIGINAL AUTHORSHIP

I, Jacob Thomson declare that this thesis, is submitted in fulfilment of the requirements for the award of the Doctor of Philosophy, in the Institute for Sustainable Futures at the University of Technology Sydney.

This thesis is wholly my own work unless otherwise reference or acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

This thesis is the result of a research candidature conducted with another University as part of a collaborative Doctoral degree.

This document has not been submitted for qualifications at any other academic institution.

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In memoriam

BFT

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ABSTRACT

This research asks: *How can current Disaster Risk Reduction (DRR) strategies in use by rural households in development contexts be practically improved for a future of evolving disaster risk?* This question is important because not only are losses to disaster increasing, but they continue to have a disproportional effect on the world's poor. But the same reasons that make improved DRR strategies important, also present clear challenges for disaster research and praxis.

For assessment, persistent limitations of DRR governance mean that **livelihoods** have been the principal means by which households have pursued self-reliance in the face of disaster. But rural livelihoods are complex and dynamic, incorporating diverse farm and non-farm resources and processes in response to both threats and opportunities. For anticipation, obstacles include significant uncertainty of all-hazards forecasting, and the ability to incorporate risk knowledge from, and disseminate warning to, the local level – the 'first and last mile'

This research presents a case study of three villages in Lao PDR. A **systems** framework integrating the Disaster Resilience of Place conceptual model with established Community Risk Assessment indicators and methodology from DRR praxis, was used to structure enquiry implemented by an ethnographic, iterative case study methodology using Participatory Rural Appraisal tools.

It was found that cross-border trade, land encroachment, foreign-direct investment, mechanisation, and off-farm migration had resulted in higher incomes for some, but in many instances had combined with what the research identified as stochastic, increasingly transboundary, and potentially emergent **hazard dynamics** to place greater stress on the focal system. Respondents believed that a **threshold** may have been reached whereby in the event of a range of potential crises, traditional in situ DRR strategies may no longer be viable and that the best option may lie in outmigration.

The focal system was in a state of flux due to **complex feedback mechanisms** within and across national borders. This carried with it the potential for future systemic collapse that may lead to greater susceptibility and large-scale **displacement.** This has at least two implications for DRR programming. First, it questions established

programming based on **incremental adaptation in situ**. Second, it underscores the imperative and potential limitations to **improving the predictive capacity of early warning** for such complex and dynamic systems. These two approaches may remain the best means of improved, no-regrets DRR, but may still not be sufficient to hedge against future disaster risk that is **stochastic**, increasingly **transboundary**, and potentially **emergent**.

Keywords: disaster preparedness; livelihoods; displacement; stochastic; transboundary; emergent; system thresholds; early warning.

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